REMARKS

The present application has been reviewed in light of the Office Action dated March 11, 2010. Claims 1 and 5-9 are presented for examination, of which Claims 1, 8, and 9 are in independent form. Claims 2, 4, 11-15, and 17-19 have been canceled, without prejudice or disclaimer of the subject matter presented therein. Claims 1, 8, and 9 have been amended to define aspects of Applicants' invention more clearly. Support for the claim amendments is found in the original disclosure, for example, in Figs. 1-6, 12 and 13 and the accompanying disclosure, and therefore, no new matter has been entered. Favorable reconsideration is requested.

Rejections

Claims 1, 2, 4-6, 8, 9, 11-15, and 17-19 are rejected under 35 U.S.C 103(a) as being unpatentable over Fukunaga et al (US Patent No. 6,169,821), in view of Tong et al.(US Patent No. 5,982,435) and Kishi (US Patent Publication No. 2002/0031182). Claim 7 is rejected under 35 U.S.C 103(a) as being unpatentable over the citation to Fukunaga et al. in view of the citations to Tong et al., Kishi, and Islam et al. (US Patent No. 6,697,521).

In response, while not conceding the propriety of the rejections, Claims 2, 4, 11-15, and 17-19 have been canceled, without prejudice and independent Claims 1, 8, and 9 have been amended. Applicants submit that as amended, these claims are allowable for the following reasons.

Independent Claim 1 relates to a moving image coding apparatus that sequentially inputs and codes image data of frames constituting a moving image. The apparatus comprises mode selection, storage, segmentation, decoding, computation, transformation, code-data-generating, adjusting, and output units. The storage unit stores a frame image. The segmentation unit

segments image data of an input frame into a plurality of blocks. The computation unit (i) extracts, from a previous frame that has been locally decoded and stored in the storage unit by the decoding unit, predicted data of a block image obtained by segmentation by the segmentation unit and outputs a block obtained by subtracting the predicted data from the segmented block image, if the mode selected by the mode selection unit is the first coding mode, or (ii) outputs the block segmented by the segmentation unit, if the mode selected by the mode selection unit is the second coding mode. The code data generating unit encodes the spatial frequency component data for each bitplane to generate code data for each bitplane. The adjusting unit adjusts a code data amount by discarding code data corresponding to bitplanes from a least significant bit position to a predetermined bit position. The output unit outputs remaining code data from the adjusting unit as the code data of the segmented block.

Claim 1 has been amended to recite that the mode selection unit adaptively selects, for each frame, either a first coding mode of coding a frame of interest by referring to another frame using an inter-frame coding method or a second coding mode of coding a frame of interest without referring to another frame using an intra-frame coding method.

Claim 1 has also been amended to recite that the decoding unit locally decodes coded image data of the frame of interest only when the frame of interest had been encoded in the second coding mode selected by the mode selection unit and stores the decoded image data of the frame of interest into the storage unit.

Claim 1 has been further amended to recite that the transformation unit that executes discrete wavelet transformation for the block obtained by the computation unit to obtain spatial frequency component data.

By this arrangement, the storage unit stores only a frame image having been encoded in the second coding mode (e.g., an I-picture, or Intra-frame). If a frame of interest is encoded in

the second coding mode, the frame of interest is always encoded referring the frame image encoded as an I-picture stored in the storage unit (not a P-picture). And since the P-pictures are always encoded referring an I-picture, errors are not accumulated. This can be seen as follows. A frame encoded in the first coding mode can correspond to an Inter-frame coded frame, such as a P or B picture in the MPEG coding scheme, and a frame encoded in the second coding mode can correspond to an Intra-frame coded frame, such as an I-picture. Generally, in a Group of Pictures (GOP), at least one I-picture and a plurality of P(and B)-pictures are included. One P-picture in a GOP may be encoded referring an I-picture, but almost all P-pictures are encoded referring another P-picture which might be encoded another P-picture. As a result, if each frame in the GOP is encoded by discarding some bit-planes, the errors are accumulated, except when encoding of the next GOP (next I-picture) is started, as described in the discussion of the Background Art in the specification. The present invention solves this problem by providing a decoding unit that locally decodes coded image data of the frame of interest only when the frame of interest had been encoded in the second coding mode selected by the mode selection unit and stores the decoded image data of the frame of interest into the storage unit.

In contrast, the citations to Fukunaga et al., Tong et al., and Kishi are not understood to disclose or suggest that a mode selection unit adaptively selects, for each frame, either a first coding mode of coding a frame of interest by referring to another frame using an inter-frame coding method or a second coding mode of coding a frame of interest without referring to another frame using an intra-frame coding method, and a decoding unit that locally decodes coded image data of the frame of interest only when the frame of interest had been encoded in the second coding mode selected by the mode selection unit and stores the decoded image data of the frame of interest into the storage unit, as recited by amended Claim 1.

Rather, the reference to Fukunaga et al. is understood to be directed to a technique for recovering data caused by errors, such as communication error between a sender and a receiver. More specifically, the Fukunaga et al. citation is understood to a) relate to a picture coder, picture decoder, and picture transmission system that combine good data compression performance with a high tolerance of frame dropouts (*see* col. 1, lines 5-8), b) indicate that methods employing both intra-frame and inter-frame coding have been standardized (*see* col. 1, lines 30-31), c) disclose that intra-frame coding can be performed at regular intervals and inter-frame coding can be carried out at other times (*see* col. 1, lines 35-37), d) show that with inter-frame coding, each frame is coded with reference to the immediately preceding frame (*see* col. 1, lines 37-39), and e) discloses that frames coded by inter-frame coding are predicted from the preceding frames (*see* col. 1, lines 40-41). However, nothing has been found in the Fukunaga et al. citation that is believed to teach or suggest that a mode selection unit adaptively selects, for each frame, either a first coding mode of coding a frame of interest by referring to another frame using an inter-frame coding method or a second coding mode of coding a frame of interest without referring to another frame using an intra-frame coding method, and that a decoding unit locally decodes coded image data of the frame of interest only when the frame of interest had been encoded in the second coding mode selected by the mode selection unit and stores the decoded image data of the frame of interest into the storage unit, as recited by amended Claim 1.

The Tong et al. citation is understood to relate to a system that converts an image signal of a moving picture into storage codes and records the storage codes on a recording medium, and an apparatus that transmits the image signal of the moving picture through a transmission path (*see* col. 1, lines 10-22). And the Kishi citation is understood to relate to encoding and storing image data (*see* paragraph 1). But nothing has been found in the citations to Tong et al. and Kishi that is believed to remedy the deficiencies of the Fukunaga et al. citation identified above.

Since amended Claim 1 is believed to recite at least one feature not disclosed or suggested by the citations to Fukunaga et al., Tong et al., and Kishi, Applicants submit that the Office has not yet satisfied its burden of proof to establish a prima facie case of obviousness against amended Claim 1. Therefore, Applicants respectfully request that the rejection of amended Claim 1 be withdrawn. And because corresponding method and medium Claims 8 and 9 have been amended in a corresponding manner, they are submitted to be allowable for corresponding reasons. Therefore, Applicants respectfully request that the rejection of amended Claims 8 and 9 be withdrawn.

The other rejected claims in the present application depend from one or another of independent Claims 1, 8, and 9 and are submitted to be patentable for at least the same reasons. Because each dependent claim also is deemed to define an additional aspect of the invention, however, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

This Amendment After Final Action is believed clearly to place the present application in condition for allowance. Therefore, entry of this Amendment under 37 C.F.R. § 1.116 is believed proper and is respectfully requested, as an earnest effort to advance prosecution and reduce the number of issues. Should the Examiner believe that issues remain outstanding, it is respectfully requested that the Examiner contact Applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and an early passage to issue of the present application.

No petition to extend the time for response to the Office Action is deemed necessary for this Amendment. If, however, such a petition is required to make this Amendment timely filed,

then this paper should be considered such a petition and the Commissioner is authorized to charge the requisite petition fee to Deposit Account 06-1205.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (202) 520-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,

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